

AGNIKARMA AND ITS CLINICAL APPLICATION IN NETRA ROGA

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ABSTRACT

In *Atharva veda*, Agni has been mentioned as *Bhesaja* in the reference of *Krimi*¹ (same way our Acharyas also mentioned this *karma* (procedures) in many places as the main tool to subside the *netragata rogas* (eye diseases) if it is not subsiding by the *besaja* and *shastrakarma*.

Agni karma, the two words *Agni* and *Karma* combined forms term or i.e. *Agni- karma* which means “the action / *karma* performed with the help of *Agni*.” Acharya Sushruta is the first person in Indian system of medicine described various surgical and para-surgical procedures and its application in different diseases. These para-surgical process includes *Bheshaja Karma* [Medicinal use], *Kshar Karma* [Chemical cauterization], *Agni Karma* [Heat cauterization] and *Raktamokshan* [Bloodletting] etc. These procedures are specifically indicted according to stage and dosha predominance. Use of different para-surgical procedures has been mentioned in context of so many diseases in *Shalyatantra* like *Arsha*, *Arbuda*, *Bhangandra* ^(1,2) *Vatarakta*, *Gridhasi* ⁽³⁾ etc. So the present study is relate to *Agni karma* and its clinical application in *netra roga*.

Keywords: *Agnikarma, dahana, Cautery*

INTRODUCTION

In *Atharva veda*, *Agni* has been mentioned as *Bhesaja* in the reference of *Krimi*¹ (same way our Acharyas also mentioned this *karma* (procedures) in many places as the main tool to subside the *netragata rogas* (eye diseases) if it is not subsiding by the *beshaja* and *shastrakarma*.

Agnikarma, the two words *Agni* and *Karma* combined forms term or i.e. *Agni- karma* which means “the action / *karma* performed with the help of *Agni*.” Acharaya Sushruta is the first person in Indian system of medicine described various surgical and para-surgical procedures and its application in different diseases. These para-surgical process includes *Bheshaja Karma* [Medicinal use], *Kshar Karma* [Chemical cauterization], *Agni Karma* [Heat cauterization] and *Raktamokshan* [Bloodletting] etc. These procedures are specifically indicted according to stage and dosha predominance. Use of different para-surgical procedures has been mentioned in context of so many diseases in *Shalyatantra* like *Arsha*, *Arbuda*, *Bhangandra* ^(1,2) *Vatarakta*, *Gridhasi* ⁽³⁾ etc.

Similarly Sushruta has also mentioned these surgical procedures in *Shalakya Tantra Netra roga chikitsa* like *Pakshmakopa*, *Puyalasa*, *Abhisyanda* and *Adhimannta* etc. The purpose of this review article is to evaluate and discuss the various basic concept of para-surgical procedures used in *Netra roga Chikitsa*. Now a days cauterization by heat on affected tissue is done to remove the infections and prevent spreading organisms. Hence use of para-surgical process is described in Ayurved much earlier than its utility was discovered by modern surgeons. The technique and equipments have become advance but the basic principle are still same.

All the references of para-surgical process are collected and compiled from Sushruta Samhita and other Ayurvedic Scriptures, research papers and Journals of Ayurveda.

Acharyas Sushruta described yantra in Sutra sthana along with upyantra and Anushastra. *Agni* is described under Upyantra as well as Anushastra. ^(4,5)

Synonyms of Agnikarma²:

<i>Agni Chikitsa</i>	<i>Agnikarma Tapana Karma</i>	<i>Daha Karma</i>
<i>Agni Dagdha</i>	<i>Dagdhakarma</i>	<i>Dahan Karma</i>

Types:

Dalhana, the commentator of “*Su- shrut Samhita*”, has given the following description regarding the *Agnikarma*. “*Agni Krita Karma*” the action done / carried out with the help of *Agni*. “*Agni Sambandhi Karma*” the *Karma* or action related to *Agni*. In the first concept i.e. *Agni Krita Karma*” the *Agni* is used directly i.e. direct manner of application of *Agni* to the affected part of the body. Second concept i.e. “*Agni*” *Samband- hi Karma*”, the *Agni* related things / media are used i.e. indirect application of “*Agni*”.

a. Pathology in lid :

So the identical character in both the statements is the presence of *Agni*, whether it is used directly or indirectly through media. Mainly *vata* and *kaphaja rogas* are best managed by this procedure.

Effects of Agni Karma as follows:

1. *Sthanik Karma*: Local action
2. *Saarvadaihi Karma*: Action takes place all over the body
3. *Vishishta Karma*: Special kind of actions

Agni karma in Netra roga³:

Sl no	Site	Disease	Condition
1.	<i>Vartma roga</i> (lid pathology)	<i>Lagana</i>	Inmahalagana–afterbedanaline of treatment <i>agnikarma</i> isindicated.
2.		<i>Shonitarshas</i>	After <i>Cedana</i>
3		<i>Shushkarshas</i>	
4		<i>Arbuda</i>	
5		<i>Pakshmakopa</i>	After <i>shastra karma</i>
6		<i>Alaji</i>	With <i>suchi agra bhaga</i>

In all above condition mainly to prevent the re occurrence of the vartma roga agnikarma is mentioned. It is compare with mode of action similar to cauterization⁴.

The medical practice of cauterization is defined as the burning of a part of the body to remove an unwanted part of it, to destroy some tissue in an attempt to mitigate bleeding, remove an undesired growth, or minimize other potential medical harm, such as infections when antibiotics are unavailable. Cautery can also mean the branding of a human, either recreational or forced.

Electrocautery:

Electro cauterization is the process of destroying tissue using heat conduction from a metal probe heated by electric current (much like a soldering iron). The procedure is used to stop bleeding from small vessels (larger vessels being ligated) or for cutting through soft tissue. Electro cauterization is preferable to chemical cauterization because chemicals can leach into neighboring flesh and cauterize outside of the intended boundaries. Use of this electric cautery to cut the tissue or to coagulate the bleeding points, so this application of electro cautery is ideal for removing small skin tags, papiloma and also to control the bleeding during surgical procedures.

Diathermy:

The basic principle is to deliver high frequency current to the human body by means of active electrode and this after passing

through the tissue to be diathermized returns via a return electrode. The intense heat produced by the passage of current destroys it in different ways depending on the type of current used. Cutting current is undamped and produce cutting effect secondary to intense heat generation within the tissue. It is haemostatic also and no bleeding can occur. Coagulating current is highly damped and coagulates by tissue dehydration and its effect is mainly haemostatic. Blended current is a combination of two types of waves introducing both cutting and coagulating effects. Most new surgical units deliver low voltage cutting or blended current from a solid state generating unit through an isolated bipolar system which is considered the safest.

b. Pathology related to the *Dristigata roga* and *Sarvakshiroga*⁵:

1	<i>Dristigata roga</i>	<i>Kaphaja linganasha</i>	If pain is not subsiding after <i>vyad-hana karma</i>
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2	<i>Sarvakshigata roga</i>	<i>Adhimantha</i>	If pain is not subsiding
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Here mainly procedure is mentioned to overcome the pain which is not subsiding in nature.

Site of *agnikarma* in *Siro Roga* and *Adhimantha* : *Bhrupradesa Lalata pradesa Sankha pradesa*.

Mainly done with the help of *Panchadhathu shalaka* (five metals), they are Copper (40%), Iron (30%), Zinc (10%), Silver (10%), Tin (10%). Having 100gm weight possessing a pointed tip and heated up to the *shalaka* becomes red hot is more beneficial to create *samyak dagda vrana* which gives constant temperature and cool after specific time. As per the average heating/boiling point 236-240 degree centigrade. Immediate heat dissipation after removing from the fire is 18-20 degree centigrade, subsequent heat dissipation 4-6 degree centigrade. Superficial tissue destruction is less. Compare to *snigdhadravya*.

Mechanism of action:

1. Induction of pro-inflammation the or Application of thermodynamic principle to biological system
2. Gate control theory of pain
3. Superficial nerve endings response theory
4. Contact inhibition theory
5. Pain threshold theory
6. Piezoelectric current theory
7. Reflex theory

Effect:

Local effects of heat application

1. It increases the Vasodilatation, rate of metabolism, capillary permeability, delivery of leukocyte, elasticity of ligaments capsules, muscle and nerve conduction.
2. Removal of metabolic waste.
3. It causes the analgesia and sedation of nerves
4. It decreases the edema formation, muscle tone, muscle spasm and perspiration

These effects will depend upon

- i. Size of area heated
- ii. Duration of heating

- iii. Method of application
- iv. Depth of absorption of specific radiation

Tissue effects of heating temperature (centigrade)

		34-44	44-50	50-80	80-100	100-200	>200
Effect	visible	None	None	Blanching	shrinkage	steam	Carbonization cratering
	De layed	Edema	Necrosis	Sloughing	Slough ing	Ulceration	Largercrater
Mechan- ism		Vasodilatation, inflammation	Disruption of cell metabolism	Collage n denatura tion	Desicca tion	Vaporizat ion	Combustion of tissue hydro carbons

c. Now this principle of *Agnikarma* procedure modified scientifically in the branch of ophthalmology as Lasers ⁶:

d. Photocoagulation:

The word LASER is an acronym for light amplification by stimulated emission of radiation. Laser light is characterized by monochromaticity, coherence and collimation. These properties make it the brightest existing light. These laser light will be absorbed by tissue pigments, converted into heat, thus raising the temperature of the target tissue high enough to coagulate and denature cellular elements.

Photocoagulation uses light to coagulate tissue. When energy from a strong light source is absorbed by tissue and is converted into thermal energy, coagulation necrosis occurs with denaturation of cellular proteins as temperature rises above 65 degrees, which is used for various therapeutic purposes starting from minor surgical procedure to major surgical procedure.

While explaining photocoagulation techniques different varieties of laser techniques are adapted. Like in⁸

1. Macular photocoagulation 2 techniques are described
 - a. Focal treatment: it is used to seal specific leaking blood vessels in a small area of the retina, usually near the macula, with argon laser is carried out for all lesions (micro aneurysms, IRMA, or short capillary segments) 500-3000 microns from the center of the macula, believed to be leaking and causing CSME, spot size of 100-200microm of 0.1 second duration is used.
 - b. Grid treatment: Grid pattern laser burns are applied in the macular area for diffuse diabetic macular edema.
2. Pan retinal photocoagulation: or scatter laser consists of 1200-1600 spots. It is used to slow the growth of new abnormal blood vessels that have developed over a wider area of the retina. Each 500micro meter in size and 0.1sec duration. Laser burns are applied 2-3disc areas from the center of the macula extending peripherally to the equator.

Therapeutic applications based on photo- coagulation are as follows⁷:

1. Eyelid lesions such as Haemangiona
2. Corneal conditions reduction of postoperative astigmatism from cataract sutures
3. Laser for glaucoma.
4. Lesions of iris. These include laser coreoplasty for undrawn pupil, photomydriasis for pathologic miotic pupil, and laser sphincter ectomy and laser shrinkage of iris cyst.

5. Lesions of retina and choroid. These form the most indications in diabetic retinopathy, peripheral retinal vascular abnormalities like eales disease,coats diseases and retinopathy of prematurity, in- tra ocular tumors, macular diseases such as central serous retinopathy and age related macular degeneration.

Character of *Samyak dagdha Vrana* according to *Dhatu* ⁸:-

- i. *Twak Dhatu* – *Sabda pradurbhava* (Production of sound) *Durgandhata* (Bad odor) *Twaksankoca* (Contraction of skin)
- ii. *Sira, Snayu* – *Krsna varnata* (Black discolouration), *Unnata vranata* (Elevated) *Srava sannirodha* (Stop page of discharge) Laser treatment may cause tissue scar, occlusion of vessels, tissue atrophy and tissue contraction. As a complication Laser treatment causes transient visual loss, macular edema, haemorrhage, color vision alteration, visual field defect and night vision problems. It is hypothetically stated that after *samyak dhagdha* some local antibiotics or non specific immune globins may act as a disease modifying activity.

Principles of *Agnikarma*⁹:

Disease which is not curable by *Bhesaja, Sastra, Ksarakarma* in that place *Agnikarma* plays major role to cure those disease. *Agnikarma* is one of the methods to control Haemorrhage when other procedure is failed and also *agni* has prime role for sterilization. *Dalhana* has mentioned *Agnitapta sastra* prevent sepsis in surgical procedure. *Agnikarma* is also useful after *Sastra karma* to avoid recurrence. *Vata kapahaja vyadhis*¹⁰ are best managed by this as *vata* and *kapha* possess *sheeta guna*, for this to neutralize the *vata* and *kapha dosha* require opposite *guna* treatment that is *ushchikitsa, ushna guna* and *agni* having *anyonyasritabhava*,

Hence *agnikarma* virtue of it *sushna, tikshna, sukshma* and *laghu* property breaks *srotovarodha*, which produced by *vata* and *kapha dosha*. Thus *nirama kapha* and *vata dosha* are neutralized. it also acts like a *dosha dushya vighatana karaka* because *ushna guna* performs two functions. Firstly by stimulating i.e *utkleshana* of *dhatva agni* and due to this action *sama dhathu* (localized *ama*) is digested and secondly *ushna guna* dilated the channels of *srotas*. Due to this *srotovarodha* removed (clearing the respective *srota* channel), which was formed by *dosha – dushya samurchana* in *khavaigunya* at *dhathu*(tissue).

CONCLUSION

Its applications are widely practiced in modern surgical practice viz cauterization, laser, radiation etc. *Acharya Sushruta* has advocated five *Upakarma* for the management of *Sira*, out of them

Agnikarma is the best one. It is an ambulatory treatment modality and affordable to the common man. It deals with the action of thermal energy in the human body. It is a potent and minimally invasive para surgical procedure which has wide application in pain, recurrent occurrence and in unwanted growth conditions. Even today we can practice safely with all precaution in case of recurrent Trichiasis, and for same management in chronic glaucoma. It is hypothetically stated that it is probably capable to break down various cycles of painful adhesions. For this final conclusion more clinical research will be necessary (such as animal experiment).

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